

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A processor ~~Processing system~~ for one or more communication networks ~~with~~ including middleware, the processor comprising an application programming interface (102) ~~east over~~ configured as a data model describing quality-of-service contracts and quality-of-service adaptation paths as specified by quality-of-service aware mobile multimedia applications (101) using said application programming interface, in order to manage quality-of-service and mobility-aware network connections with other applications,

wherein a quality-of-service adaptation path defines an adaptation policy identifying quality-of-service specifications and allows quality-of-service changes.

2. (Currently Amended) ~~Processing system~~ The processor according to claim 1, ~~characterized in, that~~ wherein the adaptation paths are expressed as hierarchical finite state machines based on quality-of-service contexts.

3. (Currently Amended) ~~Processing system~~ The processor according to claim 2, ~~characterized in, that~~ wherein a quality-of-service context identifies an arrangement of quality-of-service specifications to be enforced throughout a given set of streams.

4. (Currently Amended) ~~Processing system~~ The processor according to claim 2,

~~characterized in, that~~wherein the hierarchical finite state machines comprise controllable states in the context of streams at the lowermost level.

5. (Currently Amended) ~~Processing system~~The processor according to claim 2, ~~characterized in, that~~wherein quality-of-service synchronization ~~synchronisation~~ is provided so as to ensure that some user's given constraints on quality-of-service are globally enforced throughout a given set of streams.

6. (Currently Amended) ~~Processing system~~The processor according to claim 1, ~~characterized in, that~~wherein the specification of the quality-of-service contracts comprises hysteresis parameters for the transition between quality-of-service states.

7. (Currently Amended) ~~Processing system~~The processor according to claim 1, ~~characterized in, that~~wherein the specification of the quality-of-service contracts comprises utility parameters defining user's perceived utility factors associated with the respective quality-of service contract.

8. (Currently Amended) ~~Processing system~~The processor according to claim 1, ~~characterized by~~further comprising

an application handler unit (104) offering said application programming interface (102) for providing quality-of-service aware mobile multimedia applications (101) with the possibility of managing network connections with other applications.

9. (Currently Amended) ~~Processing system~~ The processor according to claim 8,
~~characterized in, that~~ wherein the application handler unit (104) registers requests for
notification events from applications and generates such events whenever the corresponding
triggering conditions occur.

10. (Currently Amended) ~~Processing system~~ The processor according to claim 8,
~~characterized in, that~~ wherein the application handler unit (104) operates on the basis of
a data model comprising streams, quality-of-service context, quality-of-service associations
and adaptation paths modeled as hierarchical finite state machines.

11. (Currently Amended) ~~Processing system~~ The processor according to claim 10,
~~characterized in, that~~ wherein the application handler unit (104) creates for each
unidirectional stream an instance of a chain controller (109) for handling data plane and
quality-of-service control plane related issues.

12. (Currently Amended) ~~Processing system~~ The processor according to claim 11,
~~characterized in, that~~ wherein the chain controller (109) compares the quality-of-service
requirements of a user with actual values of monitored parameters and configures a chain of
multimedia components (112, 113, 114) accordingly.

13. (Currently Amended) ~~Processing system~~ The processor according to claim 12,

~~characterized in, that~~wherein the chain controller (109) creates and manages a transport service interface socket (111), whereby said multimedia components (112, 113, 114) directly exchange data through said transport service interface socket (111).

14. (Currently Amended) ~~Processing system~~The processor according to claim 11, ~~characterized in, that~~wherein the chain controller (109) monitors and controls the local resources required to process the given stream by using resource managers (110).

15. (Currently Amended) ~~Processing system~~The processor according to claim 11, ~~characterized by~~further comprising
a quality-of-service broker (106) for managing overall local resources by managing the whole set of streams via the chain controllers (109).

16. (Currently Amended) ~~Processing system~~The processor according to claim 15, ~~characterized in, that~~wherein the quality-of-service broker (106) manages system-wide resources via resource controllers (115).

17. (Currently Amended) ~~Processing system~~The processor according to claim 15, ~~characterized in, that~~wherein the quality-of-service broker (106) controls end-to-end quality-of-service negotiation by using a session manager (116).

18. (Currently Amended) ~~Processing system~~The processor according to claim 15,

~~characterized in, that~~wherein the quality-of-service broker (106) includes further functionality for downloading plug-ins (107) corresponding to a given version of a data model which can not be handled by the application handler unit (104).

19. (Currently Amended) ~~Processing system~~The processor according to claim 18, ~~characterized in, that~~wherein the quality-of-service broker (106) and the plug-ins (107) are forming a quality-of-service broker cluster (105).

20. (Currently Amended) ~~Processing system~~The processor according to claim 11, ~~characterized in, that~~wherein the application handler unit (104) and the various instances of the chain controller (109) are forming an application handler cluster (103).

21. (Currently Amended) ~~Processing system~~The processor according to claim 20, ~~characterized in, that~~wherein the application handler cluster (103) and the quality-of-service broker cluster (105) are included in one open distributed processing capsule.

22. (Currently Amended) ~~Processing system~~The processor according to claim 20, ~~characterized in, that~~wherein the application handler cluster (103) and the quality-of-service broker cluster (105) are included in separate open distributed processing capsules.

23. (Currently Amended) ~~Processing system~~The processor according to claim 22, ~~characterized in, that~~wherein the application handler cluster (103) being included in one open distributed processing capsule is installed on a given local node and the quality-of-service

broker cluster (105) being included in separate open distributed processing capsule is installed on a separate open distributed processing node, whereby a proxy quality-of-service broker is installed on the given local node.

24. (Currently Amended) A computer program, stored in a tangible storage medium, for managing quality of service, the program representing middleware and comprising executable instructions that cause a computer to: ~~Pieces of software for one or more communication networks, being loadable in one or more memory means of one or more processing devices or nodes of said one or more communication networks, representing middleware comprising~~

configure an application programming interface (102) east over as a data model describing quality-of-service contracts and quality-of-service adaptation paths as specified by quality-of-service aware mobile multimedia applications (101) using said application programming interface, in order to manage quality-of-service and mobility-aware for managing network connections with other applications,

wherein a quality-of-service adaptation path defines an adaptation policy identifying quality-of-service specifications and allows quality-of-service changes.

25. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 24,

~~characterized in, that~~ wherein the adaptation paths are expressed as hierarchical finite state machines based on quality-of-service contexts.

26. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 25,

~~characterized in, that~~wherein a quality-of-service context identifies an arrangement of quality-of-service specifications to be enforced throughout a given set of streams.

27. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 25,

~~characterized in, that~~wherein the hierarchical finite state machines comprise controllable states in the context of streams at the lowermost level.

28. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 25,

~~characterized in, that~~wherein quality-of-service synchronization ~~synchronisation~~ is provided so as to ensure that some user's given constraints on quality-of-service are globally enforced throughout a given set of streams.

29. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 24,

~~characterized in, that~~wherein the specification of the quality-of-service contracts comprises hysteresis parameters for the transition between quality-of-service states.

30. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 24,

~~characterized in, that~~wherein the specification of the quality-of-service contracts comprises utility parameters defining user's perceived utility factors associated with the respective quality-of-service contract.

31. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 24, ~~characterized by, further comprising executable instructions that cause a computer to~~
provide an application handler unit to offer (104) ~~offering said application~~
programming interface (104) for providing quality-of-service aware mobile multimedia applications (201) with the possibility of managing network connections with other applications.

32. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 31,
~~characterized in, that~~wherein the application handler unit (104) registers requests for notification events from applications and generates such events whenever the corresponding triggering conditions occur.

33. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 31,
~~characterized in, that~~wherein the application handler unit (104) operates on the basis of a data model comprising streams, quality-of-service context, quality-of-service associations and adaptation paths modeled as hierarchical finite state machines.

34. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 33,

~~characterized in, that~~wherein the application handler unit ~~(104)~~ creates for each unidirectional stream an instance of a chain controller ~~(109)~~ for handling data plane and quality-of-service control plane related issues.

35. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 34,

~~characterized in, that~~wherein the chain controller ~~(109)~~ compares the quality-of-service requirements of a user with actual values of monitored parameters and configures a chain of multimedia components ~~(112, 113, 114)~~ accordingly.

36. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 35,

~~characterized in, that~~wherein the chain controller ~~(109)~~ creates and manages a transport service interface socket ~~(111)~~, whereby said multimedia components ~~(112, 113, 114)~~ directly exchange data through said transport service interface socket ~~(111)~~.

37. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 34,

~~characterized in, that~~wherein the chain controller ~~(109)~~ monitors and controls the local resources required to process the given stream by using resource managers ~~(110)~~.

38. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 34, ~~characterized by further comprising executable instructions that cause a computer to~~ configure a quality-of-service broker (106) for managing overall local resources by managing the whole set of streams via the chain controllers ~~(109)~~.

39. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 38,
~~characterized in, that~~wherein the quality-of-service broker (106) manages system-wide resources via resource controllers ~~(115)~~.

40. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 38,
~~characterized in, that~~wherein the quality-of-service broker (106) controls end-to-end quality-of-service negotiation by using a session manager ~~(116)~~.

41. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 38,
~~characterized in, that~~wherein the quality-of-service broker (106) includes further functionality for downloading plug-ins corresponding to a given version of a data model which can not be handled by the application handler unit ~~(104)~~.

42. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 41,

~~characterized in, that~~wherein the quality-of-service broker (106) and the plug-ins (107) are forming a quality-of-service broker cluster (105).

43. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 34,

~~characterized in, that~~wherein the application handler unit (104) and the various instances of the chain controller (109) are forming an application handler cluster (103).

44. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 42,

~~characterized in, that~~wherein the application handler cluster (103) and the quality-of-service broker cluster (105) are included in one open distributed processing capsule.

45. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 42,

~~characterized in, that~~wherein the application handler cluster (103) and the quality-of-service broker cluster (105) are included in separate open distributed processing capsules.

46. (Currently Amended) The computer program ~~Pieces of software~~ according to claim 45,

~~characterized in, that~~wherein the application handler cluster (103) being included in one open distributed processing capsule is installed on a given local node and the quality-of-service broker cluster (105) being included in separate open distributed processing capsule is installed

on a separate open distributed processing node, whereby a proxy quality-of-service broker is
installed on the given local node.